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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,978	03/26/2004	Douglas A. Webb	10021.002410 (P0308)	9600
31894	7590	05/05/2006	EXAMINER	
OKAMOTO & BENEDICTO, LLP			WILLIAMS, HOWARD L	
P.O. BOX 641330			ART UNIT	
SAN JOSE, CA 95164			PAPER NUMBER	
			2819	

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/809,978

Applicant(s)

WEBB ET AL.

Examiner

Howard L. Williams

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-20 is/are rejected.
- 7) ☒ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20041213.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 10 and 18-20 are rejected under 35 U.S.C. 102(e) as anticipated by Cabuz (US 6750589 B2). Cabuz discloses a drive system for an array of electrostatic actuators (MEMs devices). The Cabuz system uses the pictured High Voltage Generator (HVG) which is disclosed as a current source (col. 6 line 24). Cabuz uses a pulse-width modulation drive to supply the power to the individual actuators (col. 4 lines 25-45). The Cabuz PWM includes a filter (LPF) to smooth the PWM output and includes a capacitor to filter and hold the voltage developed for application to the actuator. Reset and discharge of the hold capacitor in Cabuz is accomplished with the PWM charge (col. 5, lines 40-57).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 and 13-20 are rejected under 35 U.S.C. 103(a) as unpatentable over Gaverick (US 6,705,165 B2) in view of Shibuya et al. (US RE34295 E). Gaverick discloses a MEMs array driven using a PWM source to supply the drive. In column 3 lines 45-55 Gaverick discloses conventional methods of providing the drive source and actuator array on separate chips. In column 4 lines 33-50 Gaverick discloses using a multi-level bonded silicon structure or same chip approach. Gaverick discloses a modest level of detail about the PWM signal generator; numerous detailed variations of PWM generators are available. Gaverick discloses a MEMs array and discloses row and column addressing in column 11, line 43 including comparison/coincidence matching of the address and data and address decoder. The use of AND logic to perform coincidence testing of digital inputs is well known and would have been obvious to one of ordinary skill in the art because it provides a compact comparison circuit for the address bit(s).


Shibuya et al. provides one example of a detailed PWM circuit which includes a current source (20, 21; fig. 4) and a hold capacitor (23; fig. 4) with a reset switch (22). Although the Shibuya reset switch shorts the capacitor terminals together rather than grounding both terminals, the former approach also discharges the capacitor and provides the same result. Shibuya also discloses a coarse and fine control for the charging circuit, the coarse control corresponding to the more significant bit control of Shibuya et al. and the fine control corresponding to the less significant bit control. The combination of Shibuya et al. and Gaverick would have been obvious because reset control provides a mechanism to return the hold capacitor and actuator to the same

starting point and coarse and fine control of the PWM would have provided a high resolution for the control signal with minimum parts.

Claims 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication should be directed to Howard L. Williams at telephone number 571.272.1815. The Patent and Trademark Office central facsimile number for application specific correspondence intended for entry is 571-273-8300.

5/1/06  
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Howard L. Williams  
Primary Examiner  
Art Unit 2819